At the end of 50 cycles of freeze-thaw test, the specimens shall show no visible defects.

2. *Accelerated Weathering.* The material shall be subjected to a 5000 hour exposure test in a twin-arc-weatherometer at an operating temperature of 145°F (62.8°C). The test shall be made at 20 minute cycles consisting of 17 minutes of light and 3 minutes of water spray plus light. At the end of said exposure test, the exposed sample must not show any chipping, flaking or peeling.
3. *Flexibility.* The material, when applied to a thin metal plate at a spreading rate to 45 ± 5 ft^2/gallon (1.10 ± 0.12 m^2/L) shall bend without breaking the film at an angle of 180 degrees over a 25.4 mm mandrel.
4. *Fungus Growth Resistance.* The material to be used shall pass a fungus resistance test as described by Federal Specification TT-P-29b with a minimum incubation period of 21 days where no growth shall have been indicated after the test.
5. *Abrasion Test.* When tested for abrasion resistance in accordance with ASTM C418, the loss shall not be greater than 0.5 cm^3/cm^2
6. *Salt Spray Resistance.* The material, when applied to concrete at a rate of 50 ft^2/gallon (1.23 m^2/L) and tested in accordance with ASTM B117 with the coating exposed to a 5 percent sodium chloride (salt solution) for 300 hours and maintained at 90°F ± 2°F (32.2 ± 1.1°C) during the period of exposure, shall show no loss of adhesion or deterioration at the end of the 300 hours exposure to the salt spray.

SECTION 738
ELECTRICAL CONDUCTORS

DESCRIPTION. This section covers the requirements of materials for electrical conductors of the size, type and the locations shown on the Plans or established by the Engineer in Section 811 and 834.

738.01. TRAFFIC SIGNAL WIRE AND CABLE.

(a) Traffic and Signal Electrical Cable shall comply with the requirements of the International Municipal Signal Association (IMSA) Specifications No. 19-1 or No. 20-1. The conductors shall be copper No. 14 AWG, unless otherwise shown on the Plans.
(b) Shielded Loop Detector Lead-In Cable shall comply with the requirements of IMSA No. 50-2. The conductors shall be copper No. 14 AWG, unless otherwise shown on the Plans.
(c) Loop Detector Wire shall comply with the requirements of IMSA No. 51-1 or IMSA No. 51-3 except, when specified on the Plans, IMSA No. 51-5 shall be used. The conductors shall be copper No. 14 AWG, unless otherwise shown on the Plans.

738.02. BUILDING AND SECONDARY DISTRIBUTION WIRE AND CABLE.

(a) All conductors shall be copper and standard AWG sizes, unless otherwise shown on the Plans.
(b) Building Wire and Cable shall comply with the applicable requirements of ASTM B 3, ASTM B 8, ASTM B 33, the National Electric Code (NEC) and be rated for 600 volts, unless otherwise specified on the Plans.

(c) Underground Secondary Distribution Wire and Cable shall comply with the requirements of the Insulated Cable Engineers Association (ICEA)/National Electrical Manufacturers Association (NEMA) Standard Publication S-61-402/WC 5 or ICEA/NEMA Standard Pub. No. S-66-524/WC 7, unless otherwise shown on the Plans.

(d) Outdoor Aerial Neutral-Supported Secondary Distribution Wire and Cable shall comply with the requirements of ICEA/NEMA Standard Publication S-66-524/WC 7, unless otherwise specified on the Plans.

SECTION 739

PULL BOXES

739.01. PRECAST CONCRETE PULL BOXES.

Concrete pull boxes shall conform reasonably closely to the dimensions shown on the Plans and to the following materials requirements:

Portland Cement. Portland cement shall meet the requirements of Subsection 701.02.

Aggregate. Aggregate shall meet the quality requirements of Section 701 or of ASTM C 330 for Lightweight Aggregate.

Reinforcement. Welded wire fabric shall comply with Subsection 723.03.

Gray Iron Casting Cover. Gray iron casting covers shall comply with Subsection 725.04. The cover shall have a nonslip surface and two 3/8 inch (9.5 mm) pent head brass bolts and nuts to secure it to the box.

Concrete. The concrete mixture shall be designed to produce 3000 psi (20.67 MPa) strength in accordance with AASHTO T 23 and AASHTO T 22.

739.02. PRECAST REINFORCED PLASTIC PULL BOXES.

(a) **General.** Plastic pull boxes shall conform reasonably closely to the dimensions shown on the Plans and to the following materials requirements:

The reinforced plastic mortar shall be composed of a borosilicate type glass fiber in the form of woven fabric, chopped strand or mat, catalyzed polyester resin, and an aggregate.

Plastic pull boxes shall have the following design characteristics. The cover shall have an embossed nonskid surface and be equipped with two 3/8 inch (9.5 mm) pent head brass bolts and nuts to secure it to the box. The box and cover shall be concrete gray in color. The pull boxes shall be capable of withstanding the following loads.

1. *Cover:* 5000 pounds (2,268 Kg) distributed over a 10 x 10 inch (254 x 254 mm) area centered on the cover and shall withstand without puncture or splitting, a 75 ft •lb (101.6 NCm) impact load from a 12 pound (5.44 Kg) mass having a “C” tip in accordance with ASTM D 2444.
2. *Box walls:* 5000 pounds (2,268 Kg) vertical load distributed over a 10 x 10 inch (254 x 254 mm) area centered over an exposed edge of the box with the cover in place.
3. *Lateral Loads:* 5000 pounds (2,268 Kg) distributed over a 10 x 10 inch (254 x 254 mm) area of backfill immediately adjacent to the box with the box in the installed condition and without the cover in place.